

ABSTRACT

[PROBLEMS] To provide a tunable laser with high reliability and high performance, and of low cost.

5 [MEANS FOR SOLVING PROBLEMS] A tunable laser (10) comprises a double ring resonator (11) where ring resonators (111, 112) of different sizes are coupled through a directional coupler (122), an LD side waveguide (13) connected at one end (131) to the ring resonator (111) through a directional coupler (123),
10 a reflection side waveguide (14) connected at one end (141) to the ring resonator (112) through a directional coupler (123), a PLC board (15) on which the ring resonator (111) and the like are formed, a high reflection film (16) provided at the other end (142) of the reflection side waveguide (14), an LD chip (17)
15 having a low reflection film (18) formed on either of two opposing emission end faces (171, 172) and coupled optically with the other end (132) of the LD side waveguide (13), and film-like heaters (191 - 194) for varying the resonance wavelength of the double ring resonator (11).